

Exhibit 19. Limits of Scope Stability Analysis

Removal of the piles would be conducted without turbidity curtains. It is anticipated that there would be relatively small amounts of bottom sediments stirred up by pulling piles or displacing the top few inches of mud around the piles prior to cutting. The concrete cuttings themselves are nontoxic and the quantity generated per pile would be small and the distribution limited. Erection of turbidity curtains around each pile or pile group would greatly increase the duration of construction and thus the time of potential disturbance.

As discussed in Appendix I, *Hazardous Materials Discipline Report*, there would be studies during project design to identify areas with potential contamination, followed by environmental sampling and testing of suspect areas. If the lake sediments are contaminated, detailed measures would be designed so that construction and demolition activities do not spread the contamination.

Disposal of Dewatering Flow

Water collected from the majority of the construction dewatering systems would be from open sumps and is likely to be relatively turbid, both initially and intermittently as equipment works in proximity to the sumps. Dewatering flows would be routed through temporary sedimentation ponds or Baker tanks to remove settleable solids.



Advance treatment to remove very fine suspended clay and silt particles may be considered.

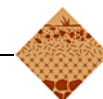
How could the project compensate for unavoidable negative effects?

Although the temporary effects of noise, vibrations, and lake sediment disturbance can be reduced as noted in the previous section, they cannot be eliminated. Intensive efforts to completely avoid these impacts may be self-defeating. For example, limiting the hours of pile-driving may extend the project length (and duration of in-water work and traffic delays) or require use of methods with more risk to water quality, such as installing piles in prebored holes. Limiting the operation of an onsite crusher could require additional truck miles to haul materials. Requiring turbidity curtains around every pile or pile group to be demolished would extend the construction duration and increase costs.



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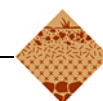
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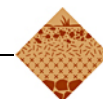
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Attachment 1

Geology and Soils Documentation

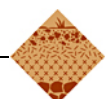
Attachment 1

Geology and Soils Documentation

This attachment describes the documentation evaluated in support of the *Geology and Soils Discipline Report*, and explains how this material can be referenced.

Each file has a unique file reference number (second column) that is written on the file. Many reports were collected that had duplicate information, or did not have enough spatial references to be useful, or were limited to shallow depths; they have not been included in the summary and their file reference numbers are excluded from Exhibit 1-1. The files were re-sorted according to geographic area, generally from west to east, and were assigned a new sequential report ID number (first column in Exhibit 1-2).

Exhibit 1-2 summarizes the files pertaining to each subarea of the project area. The numbers in the various boxes on Exhibits 1-3 and 1-4 correspond to the “Number on Exhibits 1-3 and 1-4” column in Exhibit 1-2, which in turn correspond to the report ID number (third column of Exhibit 1-2 and first column of Exhibit 1-1).



Report ID No.	File Reference Number	General Location	Date	Description of Reference	Geologic Descriptions	Geologic Plan View	Profiles/Sections	Boring Logs	Slope Stability/Landslides	Reference (as best as can be determined from Documents)	Comments
SEATTLE SEGMENT											
1	126	Seattle	1991	Seattle Geology Map.	X	X				Glaster, R.W., and Laprade, W.T., "Geology of Seattle, Washington, United States of America", Bulletin of the Association of Engineering Geologists, 1991, Vol. 28 No.3.	
2	131	Seattle	1993	Map of Seattle Geology.	X	X				Yount, J.C., Minard, I.P., and Dembroff, G.R., "Geologic Map of Surface Deposits in the Seattle 30' x 60' Quadrangle, Washington", USGS On 1993, File Record 93-233.	
3	112	I-5; Olive Way to Shelby	1959	Test hole location, Seattle Freeway.			X	X		Test Hole Location, Seattle Freeway Plans, 1959. WSDOT Files.	Boring locations and sections; need better copy (from Sound Transit).
4	116	I-5; Lakeview to Shelby	1959	Seattle Freeway, Lakeview to Shelby, Foundation Investigation.	X					"Seattle Freeway, Lakeview to Shelby, Foundation Investigation", Johnson, K.A. District Soils Engineer, Washington State Highway Commission, Department of Highways, April 8, 1972. WSDOT Files.	Foundations, walls, soils - written descriptions only.
5	118	I-5; E. Galer St to Shelby	1958	Tunnel Section, Foundation Investigation.	X		X	X		Tunnel Section, Foundation Investigation, E. Galer to Shelby II, 1958. Job No. L 1940. WSDOT Files.	Doesn't look like published documents (no stamp)
6	123	I-5; E. Galer St to Shelby	1958	Hand-drawn sections w/stick logs.			X	X		Johnson, K.A., "Soil Profile, Seattle Freeway, Olive Way to Shelby Street", Aug. 5, 1958. WSDOT Files.	Difficult to read
7	109	I-5 & E. Galer St.	1965	East Galer Street Slide Control Plans.			X		X	"Seattle Freeway East Galer Street Slide Control Plans", King County, Sheets 2 through 6, March 11, 1965. WSDOT Files.	Small x-section only
8	110	N. Broadway & Lakeview Blvd	1939	North Broadway Storm Drainage Proposal.			X		X	Sound Transit Files.	Maybe be better copy available from Sound Transit.
9	111	I-5; E. Republican to Galer St.	1961	I-5 Cylinder Piles WSDOT Plans.					X	Primary State Highway No. 1, Seattle Freeway Plans, Republican Street to East Galer, King County, Washington State Highway Commission, Department of Highways, July 1961. WSDOT Files.	Retaining wall plans
10	113	I-5; Olive Way to Galer Street	1963	Foundation Studies; Seattle Freeway.	X			X	X	Shannon & Wilson, "Foundation Studies, Seattle Freeway, E. Olive Way to Galer Street, Seattle, Washington", Prepared for Department of Highways, District 7, July 12, 1963.	S&W study of slope stability (Cylinder Piles): 3 copies and Appendix I.
11	114	I-5; Galer St. to Newton	1959	Soil Test Data and Bridge/Viaduct Layout Plans.			X	X		"Primary State Highway No. 1, Seattle Freeway, East Galer St. to Lakeview Blvd Viaduct Plans", Washington State Highway Commission, Department of Highways, Federal and Interstate Project No. I-5-3(71)167, Oct. 1, 1959. WSDOT Files.	Stick Logs, Boring locations, pier locations.
12	115	I-5; Mercer & Roanoke I/C	?	Sound Transit plot of boring locations.						Sound Transit Files. Boring logs on file at Sound Transit (not copied).	Boring logs not copied, but available at Sound Transit
13	117	I-5; Roanoke St	?	Roanoke St. U'xing; foundations and stick log.				X		WSDOT Files.	Plan with some boring location and section showing foundations; one stick log. No reference information. (Maybe part of Reference 118)
14	125	I-5/SR520 I/C	1999	Misc. S&W Boring logs/plans.			X	X		Shannon & Wilson, Inc., Central Link Lighttrail, LB235-GDR, prepared for Sound Transit, October 1999. (some documents not published)	Hand-drawn profiles and boring locations
15	119	I-5; Shelby to Ship Canal	1993	Geotechnical Seismic Evaluation, I-5 Ship Canal Bridge, Seattle, Washington.	X		X	X	X	Shannon & Wilson, Inc., "Geotechnical Seismic Evaluation, I-5 Ship Canal Bridge Seattle, Washington", prepared for Anderson Bjornstad Kane Jacobs, May 1993.	S&W seismic study of bridge; good sections & boring logs
16	120	I-5; Shelby to Ship Canal	1959	Lake Washington Ship Canal Bridge Piers No. 18 to 24, Plans.			X	X		"Primary State Highway No. 1, Seattle Freeway Plans, Lake Washington Ship Canal BR, South Approach", Washington State Highway Commission, Department of Highways, Feb., 16, 1959. WSDOT Files.	Soil stick logs, sections, pier foundations; maybe several plans mixed together (dates are not same). Doubles of several sheets.
17	124	I-5; Ship Canal	1958	Plans; boring layout and sections.			X	X		Primary State Highway No. 1, Seattle Freeway Plans, Lake Washington Ship Canal Bridge, piers No. 18 to 24, King County", Washington State Highway Commission, Department of Highways, July 3, 1958. WSDOT Files.	stick logs on sections, foundations, layout; Hand-drawn section included w/plans.
18	252	Ship Canal / Floating Bridges	1991	Geology of Washington.	X					Galster, R.W., and Laprade, W.T., "Geology of Washington, United States of America", Bulletin of the Association of Engineering Geologist, August 1991, Vol XXVIII, No. 3, pp. 286-292.	Copied section on Ship Canal and Floating Bridges.
19	253	SR 520; Lake Wash.	2000	Navigational corridor of Union to Portage Bay.		X				"Figure 2, Navigational Corridor, University Bridge to Union Bay", Trans-Lake Washington Project, Dec. 12, 2000.	Shows marsh locations.
20	255	Ship Canal	?	Engineering Geology discussion on ship canal construction.	X					Gasler, R.W., "Geologic Aspects of Navigation Canals of Western Washington", Engineering Geology in Washington Volume 2, Washington Division of Geology and Earth Resources Bulletin 78.	General geology and construction information.
21	256	Ship Canal	?	Geological Survey discussion of ship canal.	X					Chrzastowski, M., "Historical Changes to Lake Washington and Route of the Lak Washington Ship Canal, King County, Washington", Department of Interior, United States Geological Survey, Open File Report 81-1182.	
22	257	Ship Canal	1992	US Army Corps of Engineers, Ship Canal construction.	X					Willingham, W.F., "Northwest Passages: A History of the Seattle District, U.S. Army Corps of Engineers, 1896-1920".	Photos
23	201	SR 520/I-5; Delmar Dr	1967	Seattle Preparatory School; Plan and Profiles.			X	X		Shannon & Wilson Inc., "Faculty Residence, Seattle Preparatory School", July 2, 1967. Sound Transit Files	May need better copy from Sound Transit
24	202	SR 520; 10th Ave and Delmar	1961	2nd Lake Washington Bridge (SR 520) 10th Ave and Delmar U'xings.			X	X		"2nd Lake Washington Bridge, 10th Ave N. Undercrossing" and "2nd Lake Washington Bridge, Delmar Drive Undercrossing Foundation Investigation", Materials Laboratory, May 1961. WSDOT Files	Profiles w/Stick logs; could be separate references.
25	203	SR 520; Roanoke I/C	1961	Roanoke Interchange to Evergreen Point Bridge; 10th Ave N. U'xing.						"Roanoke Interchange to Evergreen Point Bridge, 10th Avenue N. Undercrossing", Materials Lab, March 1961. WSDOT Files.	Plan view of U'xing; some boring locations; maybe related to Ref. No. 202
26	204	SR 520; Delmar	1960	Test Boring Info for 520 near Delmar Drive.				X		"Test Boring Information, Evergreen Point Bridge West Approach, Vic. Delmar Drive", Federal Road Division No. 8, Washington, Dec. 21, 1960, Sheet 1 of 1. WSDOT Files.	Stick logs and layout. Could be associated w/202 & 203

Report ID No.	File Reference Number	General Location	Date	Description of Reference	Geologic Descriptions	Geologic Plan View	Profiles/Sections	Boring Logs	Slope Stability/Landslides	Reference (as best as can be determined from Documents)	Comments
27	205	SR 520;	1958	SR 520 boring locations.						"Test Boring Location, 2nd Lake Washington Bridge - West Appr., Delmar Drive to Portage Bay", Toll Bridge Authority, Aug 13, 1958, Sheet 2 of 2. WSDOT Files	Boring locations; plan view only. Could be associated w/202, 203, 204.
28	206	SR 520; 10th Ave and Delmar	1966	Discussion on landslide cause, effect and corrective action.	X		X		X	Annon. "Cause, Effect, and Corrective Action, Slide Vicinity N-E Ramp, Station 2341+00 on Right", Contract C-3544, PSH No. 1 (SR 520). WSDOT Files.	Lab data, verbal description, reports, sections; photos missing.
29	207	SR 520; 10th Ave and Delmar	1965	10th Ave. Slide.				X	X	"10th Ave. Slide", As-Built, Region No. 8, Washington, Jan. 4, 1965. WSDOT Files.	Boring locations; plan view, stick logs, structural sections, corrective measures
30	209	SR 520; Delmar Drive	1960	Foundation Letter; missing attached figures.	X					Johnson, K.A., "Evergreen Point Bridge, West Approach, RO 463, Structure Foundation, Vicinity of Delmar Drive", District Soils Engineer, December 20, 1960. WSDOT Files.	Written descriptions only; foundation, soils, walls, etc
31	210	SR 520; Delmar Drive	1960	Existing Drainage Installations; Delmar Drive to Boyer Ave.			X		X	"Evergreen Point Bridge, West Approach, Existing Drainage Installations, Delmar Drive to Boyer Avenue", Federal Road Division No. 8, Washington, Oct 1960, Sheet 1 of 1. WSDOT Files?	Single sheet w/plan & profile of slide.
32	211	SR 520; 10th Ave to Delmar Dr	1961	SR 520 As-Built; 10th Ave to Delmar Dr.				X		"Primary State Highway No. 1, Roanoke Expressway, 10th Avenue North to Delmar Drive", Washington State Highway Commission, Department of Highways, October 24, 1961, Sheets 5, 6, 7, 8, 29, 30, 30-A, 31, 40, 51. WSDOT & Sound Transit Files.	Half-size sheets; some doubles, stick logs a last few sheets, wall and slope plans
33	212	SR 520; Delmar	1966	Borings and slide location.				X	X	"Location of Test Holes, Delmar Drive East and 11th Avenue North Slide Area", WPA, March 1966.	Hand-drawn; with some as-builts
34	213	SR 520; Montlake to I-5	?	Boring locations.				X	X	No Source - WSDOT Files??	Plan and section on oversized sheet
35	214	SR 520 Portage Bay	1961	Foundation Investigation section.			X	X		"West Approach 2nd Lake Washington Bridge, Portage Bay, Foundation Investigation, Federal Road Division No. 8, Washington, Materials Laboratory, April 1961, Sheet 1.2, and 3 of 3. WSDOT Files.	boring logs in section; full set of full sized, sheet 2 in half size too.
36	215	SR 520; Montlake	2001	S&W test borings and layout.				X		Shannon & Wilson Inc., "Sound Transit, Montlake, Seattle, Washington" Prepared for Sound Transit, August 2001, Boring No. NB-387, NB-388, NB-389, NB-394, NB-395.	no section
37	216	SR 520; Montlake I/C	1960	Layout and stick borings; single, full-sized sheet.				X		"Montlake Blvd Interchange, Test Hole Location", Department of Engineering, City of Seattle, Nov. 18, 1960. WSDOT Files.	
38	218	SR 520; Montlake I/C	1961	Soil Investigation letter.	X					McKibben, W.E., "RO 467 - Montlake Interchange, Soil Investigation", Washington State Highway Commission, Department of Highways District No. 7, Sept. 26, 1961. WSDOT Files.	no figures; soil descriptions
39	219	SR 520; Montlake I/C	1961	Foundation/Embankment Letter.	X			X		Bugge, W.A., "Montlake Interchange - City of Seattle Construction", Washington State Highway Commission, Department of Highways District No. 7, June 1, 1961. WSDOT Files.	soils investigation attached w/ written descriptions of logs
40	247	SR 520; Montlake Bridge	1995	S&W seismic evaluation of bridge.	X		X		X	Shannon & Wilson Inc., "Geotechnical Recommendations, Seismic Evaluation of the Montlake Bridge, Seattle, Washington", prepared for Parsons Brinkerhoff, May 1995.	
41	221	SR 520; Arboretum I/C	1961	Arboretum I/C- written letter w/ boring layout.	X			X		Johnson, K.A., "R.O. 522 Second Lake Washington Bridge, West End, Arboretum Interchange, STA 46+50 to STA 55+00", District Soil Engineer, September 28, 1961. WSDOT Files.	Boring logs in text, location on plan sheet
42	222	SR 520; Arboretum I/C	1961	West-South Line; Arboretum I/C; sections w/ stick logs.			X	X		"West-South Line, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheets 1-3 of 3. WSDOT Files.	No plan view included.
43	223	SR 520; Arboretum I/C	1961	North-Montlake Line; Arboretum I/C; Sections w/ stick logs.			X	X		"North-Montlake Line, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheets 1-3 of 3. WSDOT Files.	No plan view included.
44	224	SR 520; Arboretum I/C	1961	West Montlake Line; Arboretum I/C; Sections w/ stick logs.			X	X		"West Montlake Line, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheets 1-2 of 2. WSDOT Files.	No plan view included.
45	225	SR 520; Arboretum I/C	1961	North-South Baseline; Arboretum I/C; Sections w/stick logs.			X	X		"North-South Baseline, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheet 1 of 1. WSDOT Files.	No plan view included. California Pen. Logs mostly
46	226	SR 520; Arboretum I/C	1961	North-East Line; Arboretum I/C; Sections w/ stick logs.			X	X		"North-East Line, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheets 1-3 of 3. WSDOT Files.	No plan view included. One sheet w/California Pen and one with stick logs
47	227	SR 520; Arboretum I/C	1961	East-West Line; Arboretum I/C; Sections w/ stick logs.			X	X		"East-West Line, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheets 1-4 of 4. WSDOT Files.	No plan view included.
48	228	SR 520; Arboretum I/C	1961	North-West Line; Arboretum I/C; Sections w/ stick logs.			X	X		"North-West Line, West Approach 2nd Lake Washington Bridge, Arboretum Interchange", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, October 1961, Sheets 1 of 1. WSDOT Files.	No plan view included. One boring with a couple California Pen logs

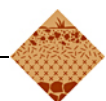
Report ID No.	File Reference Number	General Location	Date	Description of Reference	Geologic Descriptions	Geologic Plan View	Profiles/Sections	Boring Logs	Slope Stability/Landslides	Reference (as best as can be determined from Documents)	Comments
49	229	SR 520; Arboretum I/C	1961	Arboretum I/C; Approach Sections; no plan view.			X	X		"2nd Lake Washington Bridge, Unit No. 2 West Approach Structure", Foundation Investigation, Materials Laboratory, Federal Road Division No. 8, Washington, Feb. 1961, Sheets 1-4 of 4. WSDOT Files.	Sections with boring logs. Duplicates.
50	230	SR 520; Arboretum I/C	1961	Arboretum I/C; Boring Locations.						"Roanoke Expressway, Arboretum Interchange, Test Hole Location", Foundation Investigation, Materials Laboratory, October 1961. WSDOT Files(?)	Boring locations with proposed alignment for references No. 222 to 229. Duplicate.
51	233	SR 520; Arboretum I/C	1961	Arboretum I/C; Boring Locations.						"Test Boring Location, Roanoke Interchange to Evergreen Pt. Bridge, Arboretum Interchange", March 1961. WSDOT Files.	Hand drawn - but neat.
52	234	SR 520; Arboretum I/C	1962	Arboretum I/C inter-department communication.				X		K.A. Johnson, "Cont. 6872. Arboretum Interchange Vic. N.S. Sta 77", Inter-department communication, Washington State Highway Commission, Department of Highways, June 1, 1962. WSDOT Files.	Memo discussing borings and pile foundations. Maybe a duplicate of earlier material.
53	235	SR 520; Arboretum I/C	1961	Arboretum I/C letter on foundations.	X					Bugge, W.A., "Second Lake Washington Bridge, Arboretum Interchange, Foundation Investigation", Washington State Highway Commission, Department of Highways, October 31, 1961. WSDOT Files.	One page letter discussing foundations.
54	236	SR 520; Arboretum I/C	1960	Arboretum I/C letter w/ boring log descriptions.				X		Bugge, W.A., "Second Lake Washington Bridge, Arboretum Interchange, Test Hole Locations", Washington State Highway Commission, Department of Highways, November 3, 1960. WSDOT Files.	Very brief boring log descriptions.
55	237	SR 520; Arboretum I/C	1955	Arboretum I/C letter on borings and lab data.	X			X		Bugge, W.A., "2nd Lake Washington Bridge and Approaches", Washington State Highway Commission, Department of Highways, May 18, 1955. WSDOT Files.	General soil profile descriptions included.
56	238	SR 520; Arboretum I/C	1961	Arboretum I/C letter on Foundation Investigation.	X					Bugge, W.A., "Second Lake Washington Bridge, Unit No. 2 - West Approach Structure, Foundation Investigation", Washington State Highway Commission, Department of Highways, March 9, 1961. WSDOT Files.	General soil profile descriptions included.
57	239	SR 520; Arboretum I/C	1958	Arboretum I/C letter on Toll Brige Authority proposal for 520 bridge.						Bugge, W.A., "Untitled Letter, Washington State Highway Commission, Department of Highways, October 5, 1958. WSDOT Files.	Discusses thick peat layer, embankments, and disposal of peat.
LAKE WASHINGTON SEGMENT											
58	242	SR 520; West Approach	1960	Boring Locations; West Approach.						"2nd Lake Washington Bridge, West Approach, Foundation Investigation", Materials Laboratory, Federal Road Division No. 8, Washington, October 1960. WSDOT Files.	Duplicate.
59	243	SR 520; West Approach	1961	Plan/Profile of West Approach.			X	X		"Evergreen Point Bridge - West Approach, Test Boring Location & Profile", Federal Road Division No. 8, Washington, January 1961. WSDOT Files.	Very helpful section
60	244	SR 520; Union Bay	1960	Report on Union Bay Peat.	X		X	X	X	Dunn, W.L., "Some Characteristics of Union Bay Peat", Office of the University of Architect, University of Washington, Seattle, November 21, 1960.	Discussion on properties of peat, geology of area, logs, sections, etc.
61	245	SR 520; Union Bay	1963	Post Glacial Sediments in Union Bay.	X		X			McManus, D.A., "Postglacial Sediments in Union Bay, Lake Washington, Seattle Washington", Contribution No. 281, Department of Oceanography, University of Washington, Vol 37, No. 2, 1962.	Journal paper.
62	248	SR 520; Floating Bridge	1993	S&W seismic evaluation of bridge.	X		X	X		Shannon & Wilson Inc., "Seismic Evaluation, SR-520 Floating Bridge, Seattle, Washington", prepared for KPFF Consulting Engineers, March 1993.	
63	249	SR 520; Floating Bridge	1997	Evergreen Point Bridge Anchor Cable Replacement Plans.			X			"SR 520, Evergreen Pt. Bridge, Anchor Cable Replacement", WSDOT, Feb 2, 1997, Layouts 1 and 2. WSDOT Files.	Plan/profile of anchors; no soils info.
64	250	SR 520; East Approach	1955	Soil Profiles.			X	X		"Soil Profile, Lake Wash. Floating Bridge #2, Approach Eastside of Lake", March 1955, Sheets 1-2 of 2. WSDOT Files.	No plan view. Stick logs included.
65	251	SR 520; East Approach	1961	Foundation Investigation Letter on SR 520 East Approach.	X					Bugge, W.A., "Second Lake Washington Bridge, Unit No. 2 - East Approach Structure, Foundation Investigation", Washington State Highway Commission, Department of Highways, February 3, 1961. WSDOT Files.	Descriptions of geology, foundation recommendations.
66	252	SR 520; East Approach	1960	Plan & Profile of bridge foundations.						"Second Lake Washington Bridge, Unit No. 2 - East Approach Structure", Federal Road Division No. 8, Washington, July 1960, Sheet 5. WSDOT Files.	Single sheet. No soils information. Foundation types included.
67	253	SR 520; East Approach	1960	Soil Profiles of each approach.			X	X		"Second Lake Washington Bridge, Unit No. 2 - East Approach Structure, Foundation Investigation", Materials Laboratory, Federal Road Division No. 8, Washington, Dec. 1960. WSDOT Files.	No Plan view. Stick logs included. Duplicate.
EAST OF LAKE WASHINGTON SEGMENT											
68	254	SR 520; 76th, 84th, 92nd	1961	SR 520 Easterly Approach Borings and Foundation layout at 76th, 84th, and 92nd.				X		"76th, 84th, and 92nd Ave Undercrossings, Easterly Approach, 2nd Lake Wash Brgd..", Federal Road Division No. 8, Washington, March 1961. WSDOT Files.	Stick logs and foundation types included.
69	255	SR 520; East Approach	1961	Foundation Investigation Letter on SR 520 East Approach - Alignment change due to landslide.	X			X	X	Bugge, W.A., "East Approach to Evergreen Point Bridge - Slide Area, Station 279+00 to Station 299+00, Foundation Investigation", Washington State Highway Commission, Department of Highways, March 15, 1961. WSDOT Files.	Location given as, "along Points Drive, south of Yarrow Bay". Plan & Profiles Included.
70	256	SR 520; Bellevue Way	1963	Foundation Investigation Letter on unsuitable material at Bellevue Way crossing.				X		Bugge, W.A., "Evergreen Point Bridge Approach, Yarrow Bay Interchange, Foundation Investigation", Washington State Highway Commission, Department of Highways, January 8, 1963. WSDOT Files.	Attached plan with boring logs.
71	257	SR 520; 104th Ave	1962	Structure U'xing plan and profile.						"East Appr. To Evergreen Pt. Bridge - 104th Ave N.E. U'xing", Federal Road Division No. 8, Washington, Nov. 1962. WSDOT Files.	Boring locations on plan, foundation types shown.
72	258	SR 520; 104th Ave	1963	Foundation Investigation Letter.	X					"East Approach to Evergreen Point Bridge, 104th Avenue N.E. Undercrossing, Foundation Investigation", Washington State Highway Commission, Department of Highways, January 23, 1963. WSDOT Files.	Some soils information, foundation recommendations.
73	259	SR 520; Northup Way	1995	S&W retaining wall report for HOV widening.	X		X	X		Shannon & Wilson Inc., "Technical Memorandum, SR-520 HOV Lane Widening Project, Design of Retaining Wall Nos. 1 and 2, Seattle, Washington", prepared for Svedrup Civil, Inc., March 1995.	

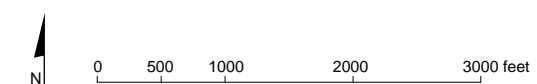
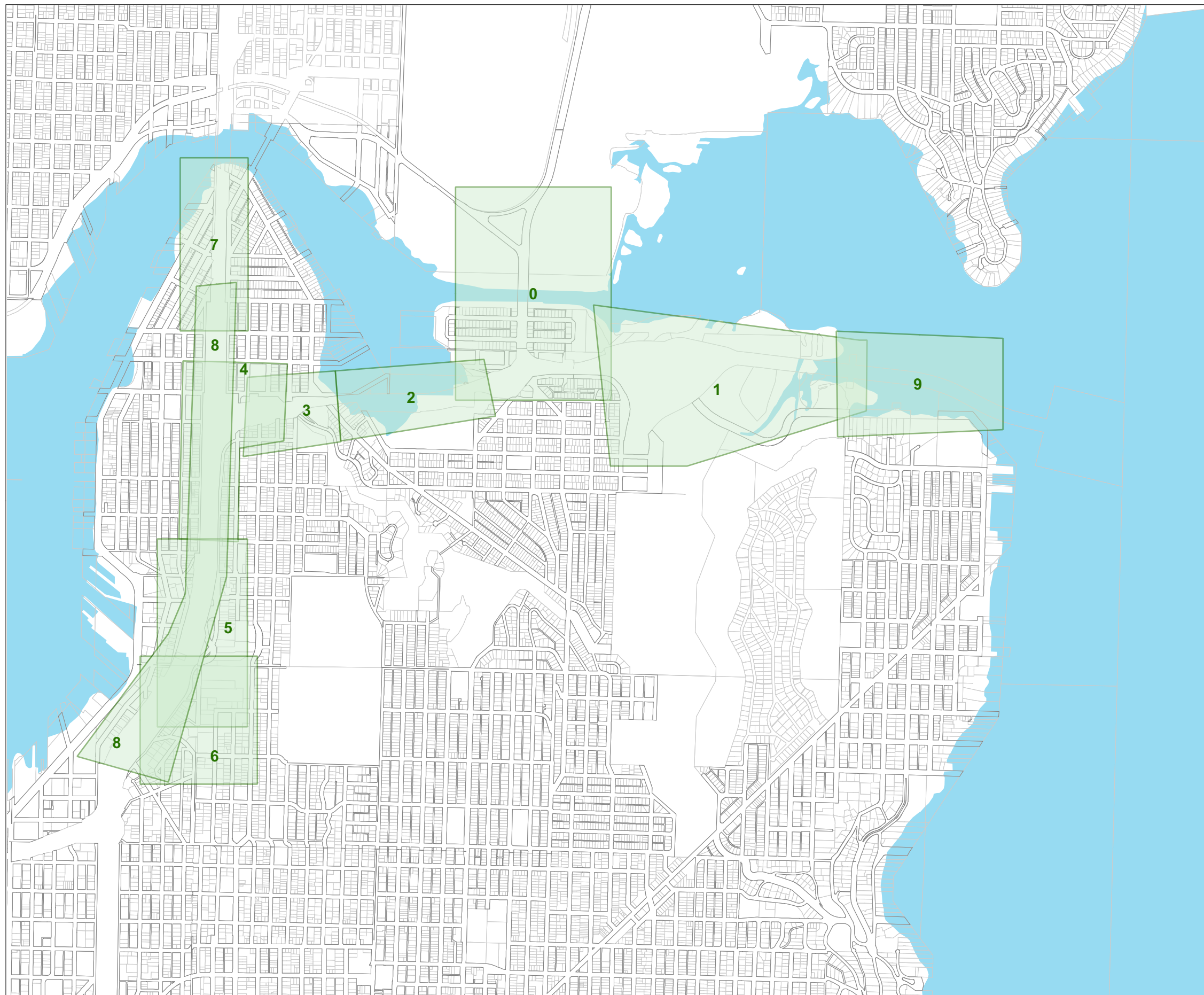
Report ID No.	File Reference Number	General Location	Date	Description of Reference	Geologic Descriptions	Geologic Plan View	Profiles/Sections	Boring Logs	Slope Stability/Landslides	Reference (as best as can be determined from Documents)	Comments
74	260	SR 520; Northup Way	1995	Landau Geotechnical Report.	X			X		Landau Associates, Inc., "Widening of 108th Avenue NE, Bellevue Washington", prepared for KPG, Inc., October 13, 1995.	Boring locations map not legible.
75	261	SR 520; East Approach to Northup	1964	WSDOT soils report with plan and profiles.			X	X	X	Bronson, K.E., "Soils Report C.S. 1757 L-2669 P.S.H. #1-EV, 104th Avenue N.E. to Junction P.S.H. #1-RE, C.S. 1745 P.S.H. #1-RE, Midlakes to Northup Road L 2621, Region 8, Washington, January 27, 1964. WSDOT Files.	Stick logs included. May want better copies.
76	262	SR 520; Northup/108th	1964	Profile with soil boring logs.				X		"Northup & 108th St. Interchange, EV O'xing of F1 Line (108th St.), Foundation Investigation", Materials Laboratory, Federal Road Division No. 8, Washington, April 1964. WSDOT Files.	No plan view included.
77	263	SR 520: 104th Ave NE to W. Lk Sammamish	1996	Full geotech report	X		X	X		Shannon and Wilson, "Geotechnical Report, Retaining and Noise Walls, SR 520 HOV Lane Widening, 104th Avenue NE to West Lake Sammamish Parkway, Bellevue/Redmond, Washington", prepared for Sverdrup Civil, Inc., March 1996.	
78	264	SR 520: 104th Ave NE to W. Lk Sammamish	1995	Full geotech report	X		X	X		Shannon and Wilson, "Geotechnical Report, SR 520 HOV Lane Widening, 104th Avenue NE to W. Lake Sammamish Pkwy, Bellevue/Redmond, Washington, Phase II Elevated Structures", prepared for Sverdrup Civil, Inc., March 1995.	
79	265	SR 520; Northup I/C	1964	Geologic and Foundations Report	X		X	X		Prahl, C.G., "Northup Interchange, I-405-3(125)168, Agreement No. Y-702", Washington State Highway Commission, Department of Highways, May 19, 1964. WSDOT Files	
80	266	SR 520; Northup I/C	1964	Foundation Investigation Letter with boring logs and section.	X		X	X		Prahl, C.G., "Northup Interchange, DL Ramp over Northup Way, Foundation Investigation", Washington State Highway Commission, Department of Highways, April 23, 1964. WSDOT Files.	Full-sized profile copied to 8.5x11 sheets.
81	267	I-405; E 8th to Northup	1991	Foundations Recommendations Letter.	X			X		Finkle, R.G., "NE 8th to Northup I/C, EN Ramp, SR-405 - SR-520, U'xing, Foundation Recommendations", Washington State Department of Transportation, January 4, 1991. WSDOT Files.	Deep foundation capacities, spread capacities, geologic summaries, lab data, etc.
82	268	I-405; NE 8th to Northup	1990	Foundations Recommendations Letter.	X		X	X		Finkle, R.G., "NE 8th to Northup I/C, NE Ramp/116th Ave, NE O'xing, Foundation Recommendations", Washington State Department of Transportation, October 22, 1990. WSDOT Files.	Deep foundation capacities, spread capacities, geologic summaries, lab data, etc.
83	269	I-405; NE 8th to Northup	1990	Profile with soil boring logs.			X	X		"NE 8th to Northup I/C, EN Ramp/Northup Way O-Xing", Washington State Transportation Commission, Department of Transportation, Materials Branch, October 1990, Sheets 1, 2, 4 of 4. WSDOT Files.	Missing Sheet 3.
84	270	I-405; NE 8th to Northup	1991	Profile with soil boring logs.			X	X		"NE 8th to Northup I/C, EN Ramp/SR 405 - SR 520 U'xing", Washington State Transportation Commission, Department of Transportation, Jan 1991, Sheets 1-2 of 2. WSDOT Files.	
85	271	SR 520/I-405	1963	Plan views of I/C						"Primary State Highway No. 1, Bellevue to Northup Interchange", Washington State Highway Commission, Department of Highways, July 23, 1963.	Hand-drawn boring locations. No profiles.
86	272	SR 520/I-405	1990	Report, boring logs, profiles	X		X	X		GeoEngineers, "Geotechnical Services HOV Widening for Bridges, 405/45, 405/46, 405/47, 405/48", prepared for WSDOT, July 10, 1990.	Most info is along I-405
87	273	Northrup and 108th Ave NE (405/47)	1964	Soil profile	X		X			"Northrup Interchange, N.B. Lanes Over Northrup Way (Br. 405/47E)", Materials Laboratory, Carl E. Minor, April 1964.	
88	274	Northrup and 108th Ave NE I/C (405/47)	1965	Boring logs	X			X		"Northrup and 108th Ave. NE I/C, Southbound Lanes Over Northrup Way Widening Layout", Washington State Highway Commission, July 9, 1965.	Two logs at o-xing location
89	275	Northrup Road O-Xing (405/47)	1953	Boring logs	X			X		"Northrup Road & N.P. R.Y O'Xings, Secondary State Highway No. 2-A, Northrup Road Overcrossing Test Hole Data", Washington State Highway Commission, October 1953.	Not clear where the borings are located
90	276	Northrup Road O-Xing (405/47)	1990	Location of borings, but no logs						"NE 8th to Northup HOV - Stage 1, SR 405, Bridge No. 405/47 West and East Widening", WSDOT Bridge and Structures Office, March 9 and 12, 1990.	
91	277	Northrup and 108th Ave NE I/C (405/47)	1964	Plan view of I/C, logs	X			X		"Northrup and 108th Ave. NE I/C, Lr Line Over Northrup Way Layout", Washington State Highway Commission, July 13, 1964.	
92	278	Northrup Road O-Xing (405/47)	1990	Plan and profile view of I/C, boring locations						"Layouts", WSDOT Bridge and Structures Office, August 1, 1990.	No boring logs, useful if had boring logs.
93	279	SR 520, Northup Way I/C (405/47)	1963	Plan and profile view of I/C, boring locations						"Curve Data", October 1963	No boring logs, useful if had boring logs.
94	280	I 405/Northup I/C	1963	Plan view with boring locations, soil profiles, boring logs	X		X	X		"PSH No. 1 Northrup Interchange Location Map, Test Holes and Geologic Profiles", Pacific Testing Laboratory, May 1964.	
95	281	SR 520; Northup I/C	1964	Foundation Investigation Letter with boring logs and section.	X		X	X		Prahl, C.G., "Northrup Interchange, ARL over Evergreen Point Road - Bridge No. 11, Foundation Investigation", Washington State Highway Commission, Department of Highways, April 8, 1964. WSDOT Files.	Full-sized profile copied to 11"x17" sheets.
96	282	I-405/BNRR O-xing (405/48)	1990	Plan and profile view of I/C, boring locations						"Preliminary Plan", WSDOT Bridge and Structures Office, August 1, 1990.	No boring logs, useful if had boring logs.
97	283	I-405/BNRR O-xing (405/48)	1964	Profile with geology and blow counts in borings	X		X	X		"Northrup Interchange Lr Line Over F4 Line & N.P. R.Y., Foundation Investigation", Materials Laboratory, Carl E. Minor, April 1964.	Logs on the profile. Stationing but no plan view, difficult to tell where the location is
98	284	I-405/BNRR O-xing (405/48)	1965	Plan and profile view of I/C, boring locations, boring logs	X		X	X		"SR 405, Midlakes to Northup Way Lr Line O'xing of F4 Line and N.P. R.Y. Lr Line Over F4 Line & N.R. R.Y. Layout", Washington State Highway Commission, April 28, 1964.	

Report ID No.	File Reference Number	General Location	Date	Description of Reference	Geologic Descriptions	Geologic Plan View	Profiles/Sections	Boring Logs	Slope Stability/Landslides	Reference (as best as can be determined from Documents)	Comments
99	285	I-405/BNRR O-xing (405/48)	1991	Plan and profile of bridge and overcrossing, boring logs, foundation report	X		X			"NE 8th to Northrup Bridge 405/48 SW Widening", WSDOT Materials Branch, July 23, 1991.	
100	286	I-405/BNRR O-xing (405/48)	?	Plan and profile of bridge and overcrossing	X		X	X		"Primary State Highway No. 1-RE, Midlakes to Northrup Road, Northrup I/C. DL Ramp over F4-Line & N.P. R.Y. Layout", Washington State Highway Commission, Department of Highways.	Test hole data from Dec 21, 1953.
101	287	I-405/BNRR O-xing (405/48)	1990	Plan and profile of bridge and overcrossing, boring locations, no boring logs						"Preliminary Plan", WSDOT Bridge and Structures Office, December 4, 1990.	No boring logs, useful if had boring logs.
102	288	I-405/BNRR O-xing (405/48)	1963	Plan and profile of bridge and overcrossing, boring locations, boring logs	X			X		"SR 405 & 520, Northrup and 108th Ave. NE I/C, DL Ramp Over F4 Line & N.P. R.Y., Layout and Piers No 1 & 4, and Test Holes" and "Southbound Lanes Over F4 Line and N.P. R.Y. - Widening", Washington State Highway Commission, Department of Highways, July 9, 1965.	No geology on profile
103	289	Northrup and 108th Ave NE I/C (405/48)	1953	Test hole data	X			X		"Secondary State Highway No 2-A, Northrup Road & N.P. R.Y. O'Xings, N.P.R.Y. Overcrossing, Test Hole Data", Washington State Highway Commission, September 1953.	Has stationing, but no plan view. Difficult to tell where borings are located.
104	290	Northrup and 108th Ave NE I/C (405/48)	1964	Geologic profile	X		X	X		"Northrup I/C S.B. Lanes Over F4 Line & N.P.R.Y.", Foundation Investigation, Materials Laboratory", Carl E. Minor, April 1964	No plan view
105	291	Northrup and 108th Ave NE I/C (405/48)	1963	Plan and profile of bridge, boring locations. No boring logs						"Plan and Sections Near Centerline Span", November 1963.	No boring logs, useful if had boring logs.
106	292	Northrup and 108th Ave NE I/C (405/48)	1990	Plan and profile of bridge, boring locations. No boring logs						"NE 8th to Northrup HOV Stage 1, SR 405, Bridge No. 405/48 West Widening", WSDOT Bridge and Structures Office, May 1990.	No boring logs, useful if had boring logs.
107	293	SR 520/BNSF (520/22)	1991	Geotech report, logs, profile	X		X	X		"NE 8th to Northrup Interchange Bridge 520/22S Widening, Geotechnical Recommendations", WSDOT, February 12, 1991.	
108	294	SR 520/BNSF (520/22)	1964	Soil profiles with geology	X		X	X		"Northrup I/C, N.P. Railroad O'xing, Foundations Investigation, Materials Laboratory", Carl E. Minor, April 1964.	No plan view but has stationing. Difficult to tell where borings are located
109	295	SR 520/BNSF (520/22)	1963	Plan view and bridge profile. Boring locations.						"Primary State Highway No. 1, Midlakes to Northrup Way, Northrup I/C. N.P. Railway Overcrossing Layout", Washington State Highway Department, October 1963.	No geology, no boring logs
110	296	SR 520/BNSF (520/22)	1990	Foundation rec report, boring logs, profile	X		X	X		"NE 8th to Northrup I/C BNRR Overcrossing, Bridge No. 520/22N Widening, Foundation Recommendations", WSDOT, October 4, 1990.	
111	297	SR 520/116th Ave NE (520/21)	1990	Foundation rec report, boring logs, profile	X		X	X		"NE 8th to Northrup I/C 116th Ave. NE Overcrossing, Bridge No. 520/21N Widening, Foundation Recommendations", WSDOT, October 4, 1990.	
112	298	SR 520/116th Ave NE (520/21)	1968?	Plan and profile of N. and S. Bridges						"SR 520, 116th Ave NE & N.P.R.Y. Overcrossings, 116th Ave NE Overcrossing, S. Bridge Layout", Washington State Highway Commission, Department of Highways, February 1968?	No geology. Boring locations, no boring logs. Useful if had boring logs.
113	299	SR 520/116th Ave NE (520/21)	1963	Plan and profile of bridge. Boring locations.						"Evergreen point Rd. Over 116th Ave. NE, Bridge #12", October 1963.	No geology on profiles, no boring logs. Useful if had logs.
114	300	SR 520/116th Ave NE (520/21)	1964	Profile with geology and blow counts in borings	X		X	X		"Northrup I/C, Evergreen PT. RD. Over 116th Ave. NE, Foundation Investigation, Materials Laboratory", Carl E. Minor, April 1964.	No plan view, but has stationing. Difficult to tell where borings are located.
115	301	SR 520/BNSF (520/22)	1971	Foundation investigation, boring logs profile, plan view	X		X	X		"Northrup Rd. to Redmond, EF Ramp/BNRR, F.A. No. F-054-1 Layout 1515, Foundation Investigation", Washington Highway Commission, Department of Highways, July 30, 1971.	
116	302	SR 520/124th Ave NE (520/27)	1969	Foundation investigation, boring logs profile, plan view	X		X	X		"Northrup Road to Redmond, BW Ramp Overcrossing Sta. 390, Foundation Investigation", Washington State Highway Commission, Department of Highways, January 31, 1969.	
117	303	SR 520/120th Ave NE (520/25S)	1991	Plan view, retaining wall plans, boring locations						"SR 405 and SR 520, NE 8th St. I/C to Northrup I/C HOV, Bridge 520/25S", WSDOT, Bridges and Structures, August 16, 1991.	No geology, no boring logs. Useful if had logs.
118	304	SR 520/120th Ave NE (520/25S)	1991	Profile with geology and blow counts in borings	X		X	X		"NE 8th to Northrup HOV Lanes, 120th Ave. NE O'Xing, 520/25S Widening", WSDOT, Materials Branch, January 1991.	No plan view, but has stationing. Difficult to tell where borings are located.
119	305	SR 520/120th Ave NE (520/25S)	1968	Plan view and profile with geology and blow counts in borings	X		X	X		"Northrup Road to Redmond, HB Line O'xing", Washington State Highway Commission, November 1968.	

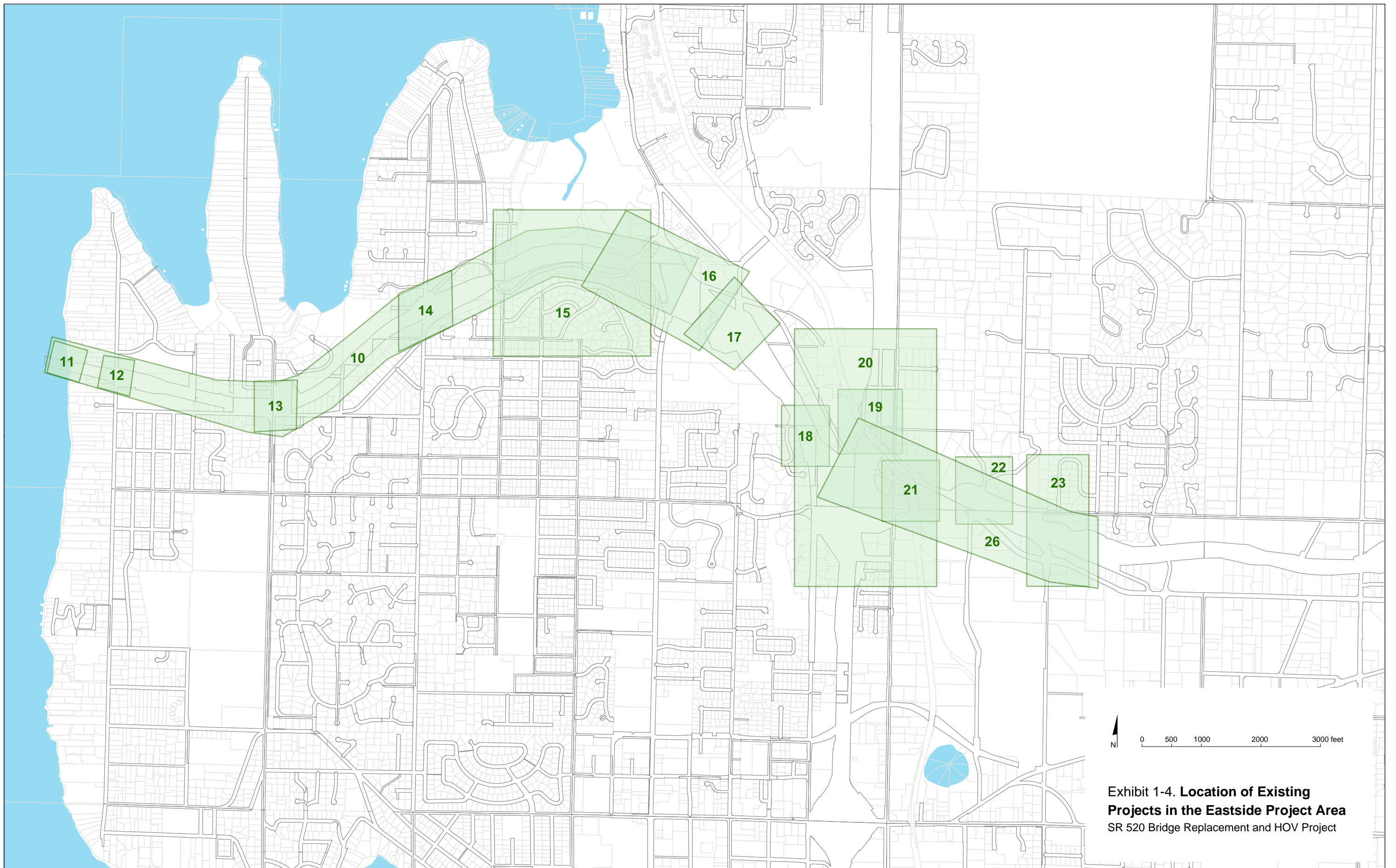
Exhibit 1-2. Reference List for Exhibits 1-3 and 1-4, Existing Subsurface Information

General Location on Figure	Number on Exhibits 1-3 and 1-4	Corresponding Report ID Numbers on Exhibit 1-1
Waterways north of SR 520	--	18, 19, 20, 21, 22
Seattle Overview	--	1, 2
SR 520 and Montlake Bridge	0	36, 37, 38, 39, 40
SR 520 along Foster Island area	1	41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61
SR 520 along Portage Bay	2	34, 35
SR 520 and the west side of Portage Bay	3	23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33
I-5 and SR 520 interchange	4	12, 13, 14
I-5 between Newton St. and Highland Dr.	5	11
I-5 between Galer St. and Aloha St.	6	7, 8, 9, 10
I-5 and the south side of the Lake Washington Ship Canal Bridge	7	15, 16, 17
I-5 and SR 520 interchange	8	3, 4, 5, 6
West side of SR 520 floating bridge	9	62, 63
SR 520 between the east side of Lake Washington and Bellevue Way	10	64
East side of SR 520 floating bridge	11	65, 66, 67
SR 520 and Evergreen Point Rd.	12	68
SR 520 and 84th Ave. NE	13	68
SR 520 and 92nd Ave. NE	14	68
SR 520 between NE Points Dr. and Bellevue Way	15	15
SR 520 and Bellevue Way interchange	16	70, 71, 72
SR 520 and 100th Avenue NE	17	73, 74, 75, 76, 77, 78
SR 520 and SE 112th Ave.	18	95
North side of SR 520 and I-405 interchange	19	96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106
SR 520 and I-405 interchange	20	75, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94
SR 520 and 116th Ave. NE	21	78, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116
SR 520 and 120th Ave. NE	22	78, 79
SR 520 and 124th Avenue NE	23	78, 117, 118, 119





**Exhibit 1-3. Location of Existing Projects
in the Seattle Project Area**
SR 520 Bridge Replacement and HOV Project



**Exhibit 1-4. Location of Existing
Projects in the Eastside Project Area**
SR 520 Bridge Replacement and HOV Project

